REMARKS

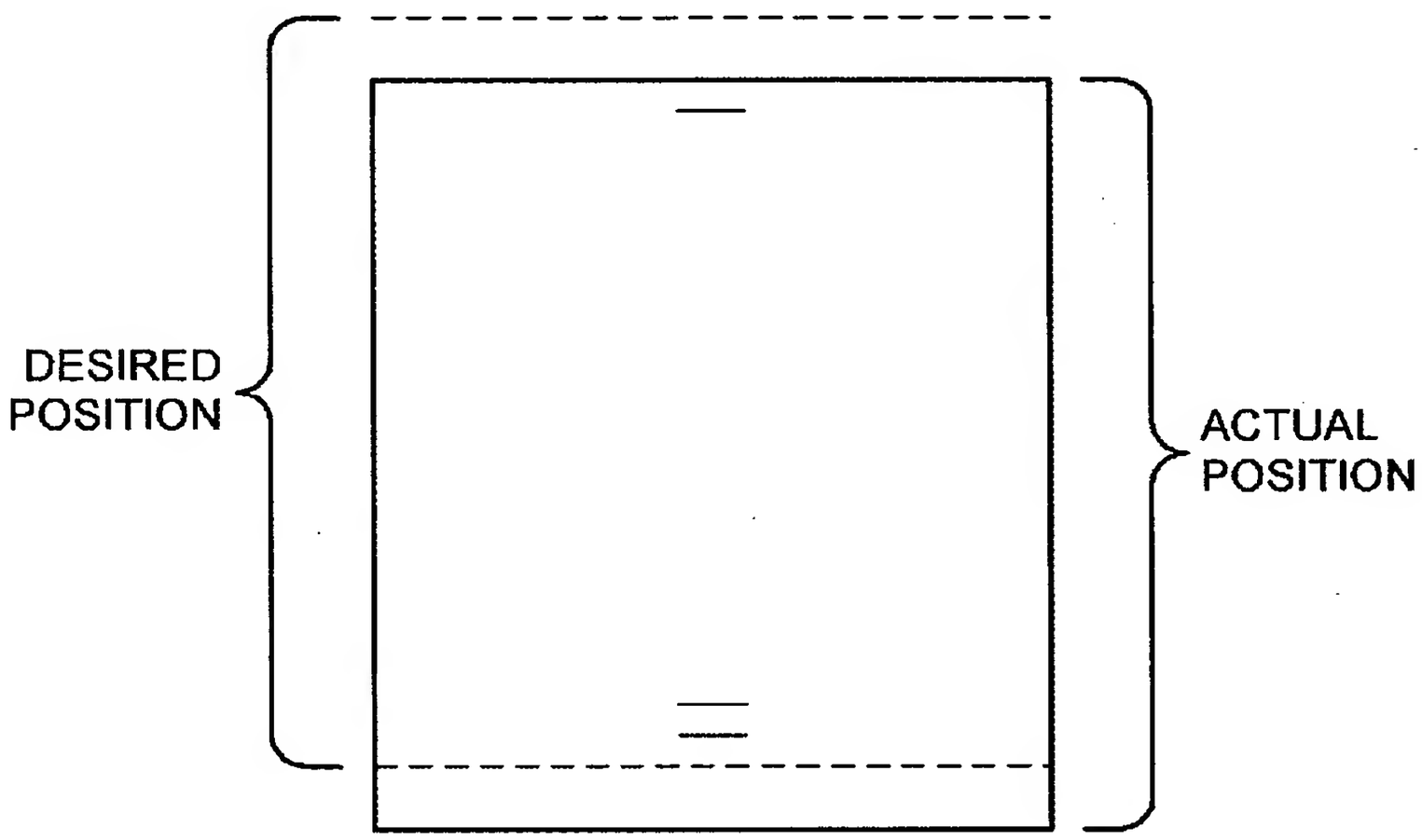
Claims 1-4

Claims 1-4 have been rejected under 35 USC 102(b) as being anticipated by Christiansen (6,411,324). Claim 1 is an independent claim, from which claims 2-4 depend. Applicant contends that claim 1 as originally filed is not anticipated by Christiansen, such that claims 2-4 are patentable over Christiansen for at least the same reasons.

In the previous office action response, Applicant differentiated the claimed invention from Christiansen by explaining how Christiansen marks media for detecting the *alignment* of media, whereas the claimed invention marks media for detecting the *advancement* of media (regardless of whether the media is aligned or not). The Examiner responded by stating that detecting the *alignment* of media, as in Christiansen, inherently encompasses detecting the *advancement* of media. That is, the Examiner has stated that the apparatus of Christiansen, in the process of sensing for *alignment* purposes, must inherently sense the *advancement* of the media, such that the apparatus cannot provide alignment without sensing advancement.

Applicant therefore explains in this response why marking media to allow for sensing the alignment of the media, as in Christiansen, does not inherently result in marking the media to allow for sensing the advancement of the media, as in the claimed invention. Stated another way, Applicant explains in this response why sensing the alignment of the media, as in Christiansen, does not inherently sense the advancement of the media, as in the claimed invention.

First, we start off by explaining what Christiansen discloses. Consider the following diagram A:



In this diagram, the media is desirably aligned from top to bottom between the two dotted lines, but is actually aligned from top to bottom as shown, "downwards" from the desired position. That is, the actual position of the media is shifted downwards from where it is desired to be, or "should be." Christiansen tries to mark two horizontal lines at the top edge of the media and at the bottom edge of the media, where the media is desirably aligned (i.e., where the media "should be"). Because the media is actually down a bit from where it "should be," one of the marks is not actually printed at the top edge of the media, but both of the marks are printed at the bottom edge of the media. This diagram A from the top edge of the media to the bottom edge of the media is similar to what Christiansen depicts in FIG. 3B from the left edge of the media to right edge of the

media. Therefore, substituting the word "top" for the word "left," and the word "bottom" for the word" right in column 4, lines 45-50[1]

> In FIG. 3B, print output was lost along the *bottom* margin inasmuch as there were fewer lines on the *top* side as on the *bottom* side. An appropriate correction to center the print output would act to move the print starting point toward the *bottom* side of the paper.

That is, what you want to do is start printing a little later than if the media were in the desired or expected position in diagram A, because the media in diagram A is in actuality a little farther down vertically than where you had expected it. This is because two alignment marks should have been printed on both the top side and the bottom side of the media in diagram A. Because only one mark was printed on the top side of the media, however, it can be concluded, per Christiansen, that the media is aligned too far downwards. To print "edge to edge," then, you would start printing a little later – i.e., a little further downward – so nothing is cut off at the top. That is, as stated in Christiansen, "the lines that actually appear at . . . the top and bottoms of a page . . . will provide a visual indication of the relative placement of the page with respect to the starting print position(s)." (Col. 3, ll. 59-62)

So what Christiansen does is mark alignment marks on the top and bottom edges of the media, and then detects them so that it knows where to start printing. The question is, does sensing these marks on the top and bottom edges of the media for alignment purposes *inherently* sense the advancement of the media. Let us first start with the legal standard for inherency. "Inherency . . . may not be established by probabilities or possibilities. The mere fact that a

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[1] This substitution is made because Christiansen is largely described in relation to left edge-to-right edge misalignment, where here we discuss top edge-to-bottom edge misalignment. For instance, Christiansen informs us in column 6, lines 39-44 that

> Those skilled in the art will recognize that the method disclosed herein is also useful to print edge to edge from the top to the bottom of a page. For this reason, a "left" edge or margin and a "right" edge or margin should be construed to be equivalent to and include a "top" and "bottom" edge or margin of a page.

certain thing *may* result from a given set of circumstances is not sufficient." (In re Oelrich, 212 USPQ 323, 326 (CCPA 1981)) "Under the principles of inherency, if a structure in the prior art necessarily functions in accordance with the limitations of a process or method claim of an application, the claim is anticipated." (In re King 231 USPQ 136, 138 (Fed. Cir. 1986)) So, for Christiansen's sensing of marks to determine the alignment of media to inherently disclose the claimed invention's sensing of marks to determine the advancement of media, such sensing for media alignment must "necessarily" sense for media advancement as well, and not "probably" or "possibly" also sense for media advancement.

Therefore, to show lack of inherency, what we can do is provide examples in which Christiansen senses for alignment without sensing for advancement. Such examples prove that sensing for alignment does not necessarily sense for advancement as well, and *at best* probably or possibly senses for advancement. That is, if Christiansen's apparatus senses for alignment without necessarily having to sense for advancement, then it senses for alignment without inherently sensing for advancement – and thus does not anticipate the claimed invention.

Going back to diagram A above, it is easy to see how Christiansen's alignment sensing works. At the top edge of the media, you move horizontally over the media, attempting to print two lines. Then you go back over this edge of the media, and detect how many lines were actually printed on the page. Because only one line was printed at the top edge of the media in diagram A, you can conclude that the media is too far downwards, and printing on the page should start a little further downwards than originally planned.

What if, instead of in diagram A, the media were perfectly aligned with or too far upwards compared to the desired position? In that case, both lines would be printed and detected at the top edge of the media, and the only thing you could conclude is that the media is not too far downwards – it is either too far upwards, or is perfectly aligned vertically. Therefore, you would advance to the bottom edge of the media, and attempt to print two lines at the bottom edge of the media. Then you again go back over this edge of the media, and detect how many lines were

actually printed. If less than two lines were printed, then you can conclude that the media is too far upwards; if both lines were printed, then the media is perfectly aligned vertically.[2]

This description of how Christiansen accomplishes media alignment sensing should make it clear that such sensing does not *inherently* sense media advancement. When detecting marks at the top edge of the media, for instance, you don't have to advance the media at all, and thus don't have to detect whether media advancement properly occurred. Rather, you can simply move horizontally over the top edge of the media and try to print a number of lines, and then move horizontally over the top edge again to see if the desired number of lines were actually printed on the media. The media remains stationary the entire time, and does not *have* to be advanced (vertically) at all to sense media alignment. Therefore, for sensing media alignment at the top edge of the media, Christiansen does not *necessarily* sense media advancement, and indeed, *probably* does *not* sense media advancement.

Similarly, when detecting marks at the bottom edge of the media, you also don't have to advance the media at all. To be sure, the media will have to be advanced to get to the bottom edge so that you can print marks there. But Christiansen doesn't perform any sensing "on the

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[2] It is noted that this description of how sensing for media alignment is accomplished in Christiansen is consistent with the description of FIGs. 3A, 3B, and 3C in Christiansen, in column 4, lines 16-58, except that we focused here on top-to-bottom alignment, and not left-to-right alignment as column 4, lines 16-58 do (and as noted in the footnoted text of footnote 1, Christiansen describes left-to-right alignment as exemplarily and inclusive of top-to-bottom alignment). That is, the calibration marks (i.e., lines) "provide a visual indication of how to provide adjust [sic] to a printer mechanism to align the mechanism to the page edges." (Col. 4, ll. 22-24) The "number of lines . . . can be correlated to the relative position of the paper . . . . In other words, the lines that actually appear at . . . the top and bottom of a page . . . provide a visual indication of the relative placement of the page with respect to the starting print position(s)." (Col. 3, ll. 57-62)

way" from the top edge to the bottom edge of the media. Rather, once Christiansen gets to the bottom edge of the media, it performs the same process: moving horizontally over the bottom edge and printing a number of lines, and then moving horizontally again over the bottom edge to see if the desired number of liens were actually printed. The media remains stationary the entire time, and does not *have* to be advanced at all to sense media alignment. That is, for sensing media alignment at the bottom edge of the media, too, Christiansen does not *necessarily* sense media advancement, and indeed, *probably* does not sense media advancement.[3]

Let's look at one final example to show why, in Christiansen, it is not inherent that sensing the alignment of the media, by sensing its marks that have been made on the media, also senses the advancement of the media. Envision a flat-bed plotter in which a sheet of media is placed stationary on a bed, and pens are moved back and forth and up and down over the media to create a desired image on the media. In this case, Christiansen's alignment sensing still works perfectly well – you can print lines on the left and the right sides to check left-to-right alignment and you can print lines on the top and the bottom sides to check top-to-bottom alignment – and the media does not move at all! In fact, this flat-bed plotter example is probably the easiest way to see why Christiansen does not require media advancement sensing when performing media alignment sensing – even if Christiansen is "probably" going to be used in a setup other than a flat-bed

[3] It should be clear that left-to-right alignment of the media also would not necessarily require media advancement or sensing of media advancement. For instance, in FIGs. 3A-3C of Christiansen, it would be quite easy to print the left marks 302/306/310 and the right marks 304/308/312 in a single swath without advancing the media at all. Applicant focused on the top-to-bottom alignment of the media in Christiansen, indeed, because it is the "harder" case, since you do advance the media to get from the top edge to the bottom edge of the media. Thus, if top-to-bottom alignment sensing does not require media advancement sensing, then left-to-right alignment sensing also cannot require media advancement sensing.

plotter, as the Court of Claims and Patent Appeals has been excerpted above, "[i]nherency . . . may not be established by probabilities or possibilities."

Applicant finishes this discussion of inherency and Christiansen vis-à-vis the claimed invention by analyzing the particular excerpt of Christiansen that the Examiner believes justifies that alignment sensing in Christiansen necessarily requires advancement sensing. As stated by the Board of Patent Appeals and Interferences, "when an examiner relies on inherency, it is incumbent on the examiner to point to the 'page and line' of the prior art which justifies an inherency theory." (Ex parte Schricker, 56 USPQ2d 1723, 1725 (BPAI 2000)) Here, the Examiner has pointed us to column 5, lines 29-52 of Christiansen as inherently teaching one-dimensional optical sensing of advancement of the media. In relevant part, this passage of Christiansen reads as follows:

> [T]he detection of the calibration marks on a calibration page can be accomplished using an optical sensor 290. As shown in FIG. 2, any appropriate optical sensor 290, which is positioned to "read" pages output from the print engine 210 can be used to sense or detect the calibration marks printed onto a calibration page.

There is nothing here that justifies the Examiner's inherency theory, to use the terminology of the Board of Patent Appeals and Interferences. Basically, this excerpt of Christiansen just says that an optical sensor can be used to detect the calibration marks printed on a calibration page. However, as has been discussed above, the calibration marks can be detected for sensing media alignment without necessarily sensing media advancement, even when using an optical sensor. Even if optically sensing alignment *probably* senses advancement, optically sensing alignment does not *necessarily* sense advancement, as has been described above, and thus does not *inherently* encompass sensing advancement. For all of these reasons, then, Christiansen does not anticipate the claimed invention.

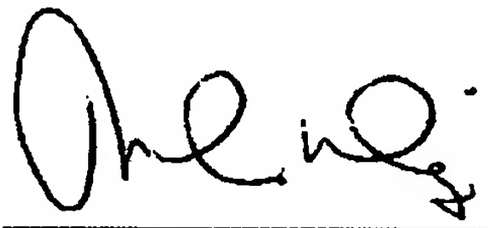
Claim rejections under 35 USC 103

Claims 5-8 have been rejected under 35 USC 103(a) as being unpatentable over Christiansen in view of Miyano (6,712,536). Claims 5-8 are dependent claims, ultimately depending from claim 1, and therefore are patentable at least for the same reasons that claim 1 is patentable, as has been described above.

Conclusion

Applicant has made a diligent effort to place the pending claims in condition for allowance, and request that they so be allowed. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Michael Dryja, Applicant's Attorney, at 425-427-5094, so that such issues may be resolved as expeditiously as possible. For these reasons, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



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